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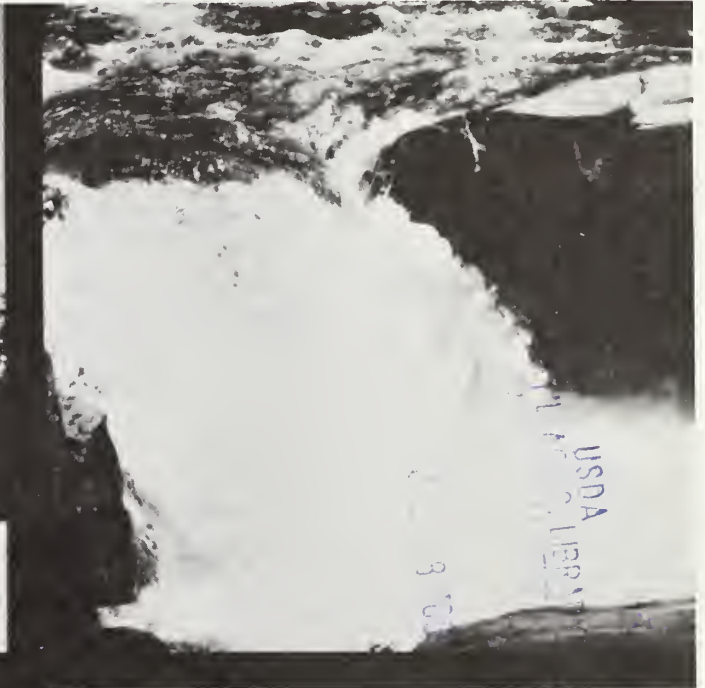
Soil
Conservation
Service

Spokane,
Washington



Washington Water Supply Outlook

JUNE 1, 1988



Foreword

How Forecasts Are Made

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason, forecasts are issued that reflect three future precipitation conditions — Below Normal, Average, and Above Normal. These forecasts are terms reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

For More Information

Copies of Monthly Water Supply Outlook Reports and other reports may be obtained from the states listed below. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	201 East 9th Ave., Suite 300, Anchorage, AK 99501-3687
Arizona	201 East Indianola, Suite 200, Phoenix, AZ 85012
Colorado	2490 West 26th Ave., Denver, CO 80211
New Mexico	517 Gold Ave. S.W., Room 3301, Albuquerque, NM 87102-3157
Idaho	304 North 8th Street, Room 345, Boise, ID 83702
Montana	10 East Babcock, Room 443, Federal Building, Bozeman, MT 59715
Nevada	1201 Terminal Way, Room 219, Reno, NV 89502
Oregon	1220 Southwest 3rd Ave., Room 1640, Portland, OR 97204
Utah	4402 Federal Building, 125 South State Street, Salt Lake City, UT 84147
Washington	360 U.S. Court House, Spokane, WA 99201-1080
Wyoming	Federal Building, 100 East "B" Street, Casper, WY 82601

In addition to state reports, a Water Supply Outlook for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 248, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include: California — Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia — The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory — Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1; Alberta, Environment Technical Services Division, 9820 106th St., Edmonton, Alberta T5K 2J6.

Washington Water Supply Outlook

and

Federal — State — Private
Cooperative Snow Surveys

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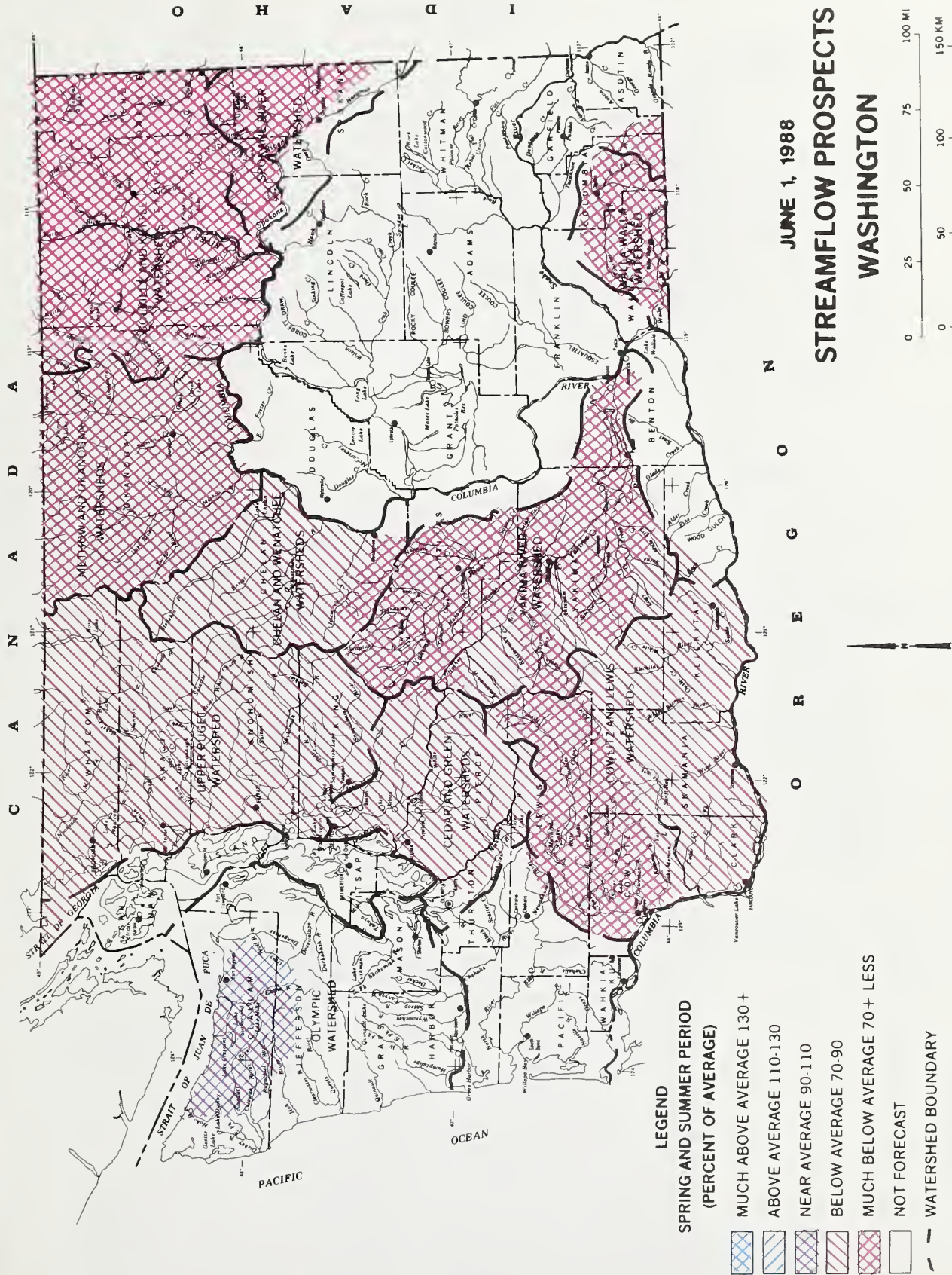
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SOURCE: Data compiled by SCS
Field Personnel

GENERAL OUTLOOK

SUMMARY:

NOTICE: THE JUNE REPORT IS THE LAST ISSUE FOR 1988. May precipitation was above normal over most of the state with only the Spokane, Okanogan and Wenatchee Basins below. Reservoir storage remains below normal in the Yakima Basin at 87% and Ross Lake at 94%, with all other reservoirs in the reporting above normal. May streamflow continued above normal for the west side of the Cascade mountains but were below normal over the rest of the state. Runoff for 1988 is forecasted to be below to much below normal in Washington. The snowpack is gone except in the higher elevations.

SNOWPACK:

Snowpack information for June is almost entirely from data collected from SNOTEL, and 21 of the 36 sites are bare. The remaining Snow pack varies as follows: the Spokane Basin 45% down from 55% last month, Colville - Pend Oreille River 39% down from 58%, the Wenatchee 69%, Chelan Basin 87% down from 92%, and the Yakima Basin 63%, down from 71% last month. On the western slopes of the Cascades the Lewis and Cowlitz basins are at 108%, the Skagit 78%, and Green 70% of normal. Maximum snow pack is at Paradise Park SNOTEL in the Cowlitz Basin, with 55.3 inches of water content, down from 67.2 inches last month.

PRECIPITATION:

May precipitation values from National Weather Service data for Washington showed most basins with above normal precipitation except the Spokane, Okanogan and Wenatchee Basins. Western Washington varied from 118% in the north to 167% in the south. Quillayute reported 10.68 inches for 224% of average. In Eastern Washington the Pend Oreille Basin had 104% of normal, the Spokane with 94%, Yakima at 146% and the Okanogan Basin with 62%. June 1 precipitation values from SNOTEL sites indicate a water year value near 83% of average for the high mountain areas of Washington. Water year to date precipitation is below average over most of the state. Values vary from 77% of normal in the Colville Basin to 96% in the Walla Walla basin.

RESERVOIRS:

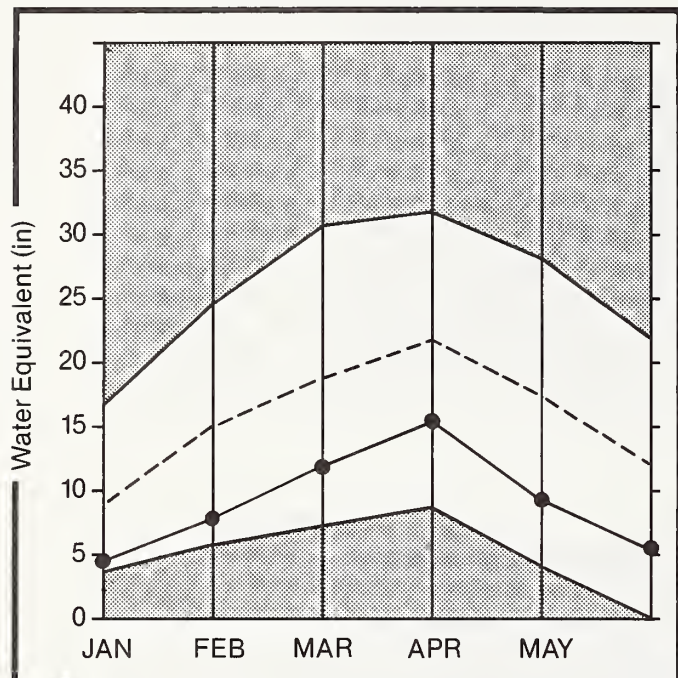
Storage at major reservoir in Washington was improved over May 1. June 1 reservoir storage are: Coeur d' Alene Lake 282,200, 127% of capacity, Chelan Lake 485,100 acre feet, 108% of average and up from 263,700 acre feet last month, Ross Lake 69% of capacity and 94% of average, Roosevelt Lake 70% of capacity and 128% of normal. Storage continues below average in the Yakima Basin with 814,500 acre feet, 87% of average and up from 583,400 acre feet, 75% of average last month. The Okanogan reservoirs are 104% of June 1 average.

STREAMFLOW:

May streamflow varied from 45% on the Spokane River to a maximum of 117% for the Chehalis River. On the west side of the Cascade Mountains, runoff from the Skykomish was 111% and 105% on the Skagit River. The eastern slope of the Cascades runoff on the Yakima was 76% and the Okanogan at 80% of average. In Eastern Washington streamflow was 66% of normal on the Pend Oreille and 72% on the Kettle River. Forecasts for summer streamflow decreased a little from last month, as much of the snowpack ran off during April. June 1 forecasts, for summer runoff, vary from 39% in the Walla Walla River to 92% for the Elwha River.

SPOKANE

Mountain snowpack* (inches)



*Based on selected stations

Maximum



Average



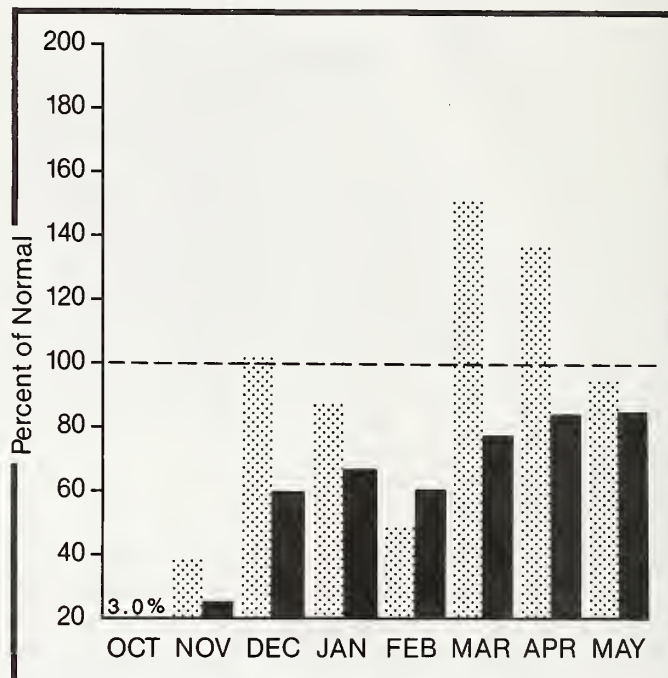
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



SPOKANE RIVER BASIN

WATER SUPPLY OUTLOOK:

Forecast of runoff for the Spokane River Basin is 52% of normal. This forecast is based upon a snow pack that is 45% of average and a water year to date precipitation value 84% of normal. May streamflow on the Spokane River was 45% of average at Spokane. Precipitation for May was 94% of normal. Maximum snow water occurred at the Lost Lake snow course, elevation 6110 feet with 23.1 inches of water content. June 1 storage in Coeur d' Alene Lake was 282,200 acre feet compared to 242,200 last Month; average storage in Cd'A for June 1 is 353,900 acre feet.

For more information contact your local Soil Conservation Service office.

SPOKANE RIVER BASIN

STREAMFLOW FORECASTS

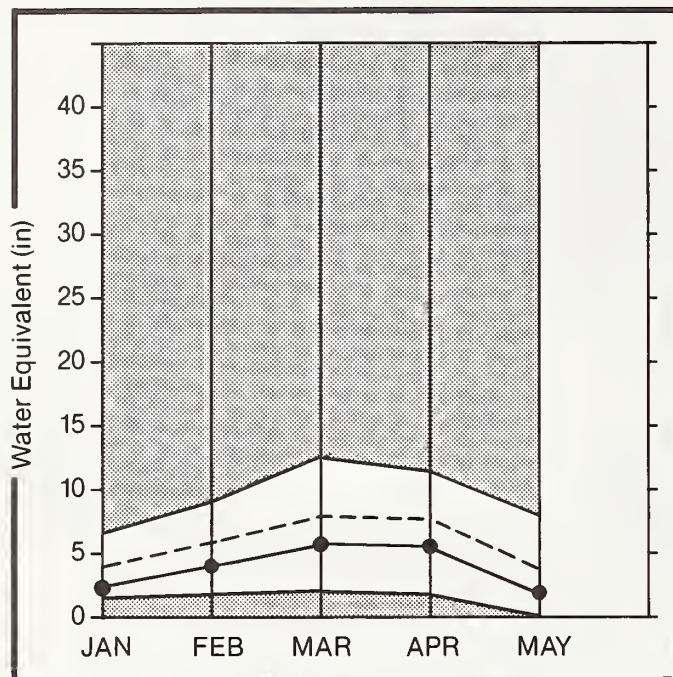
FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SPOKANE at Post Falls	MAY-SEP	1956.0	1010.0	52	1440.0	74	580.0	30
	MAY-JUL	1858.0	945.0	51	1354.0	73	536.0	29
SPOKANE at Long Lake	MAY-JUL	2097.0	1050.0	50	1510.0	72	590.0	28

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
COEUR D'ALENE	291.2	282.2	280.2	353.9	Spokane River	5	677 47

1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
 2 - Corrected for upstream diversions or changes in reservoir storage.
 The average is computed for the 1961-85 base period.

COLVILLE AND PEND OREILLE

Mountain snowpack* (inches)



*Based on selected stations

Maximum



Average



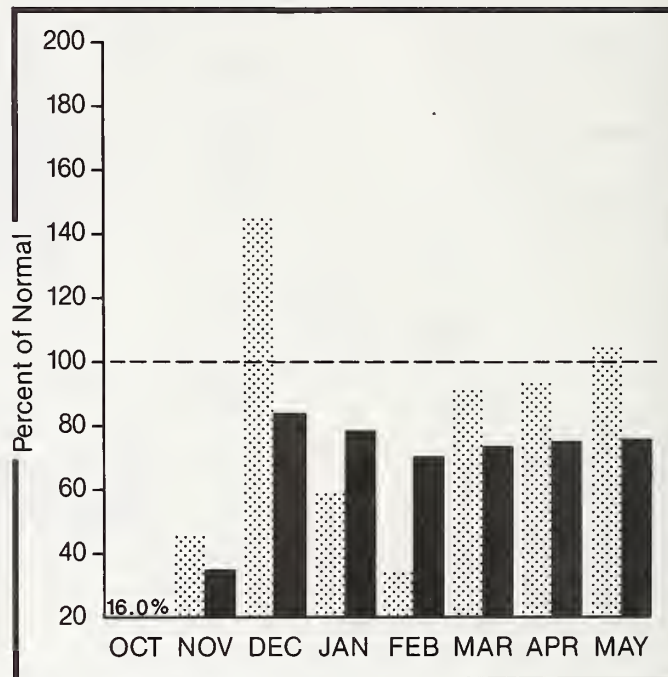
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



COLVILLE - PEND OREILLE RIVER BASINS

WATER SUPPLY OUTLOOK:

Forecasts for the Kettle River are for flows to be 64% of normal for the summer. Other forecasts are 60%, for the Pend Oreille River and 62% on the Colville River for the summer runoff period. Streamflows for May were 66% of average on the Pend Oreille River, 72% on the Kettle River and 86% on the Columbia River at the International Border. Precipitation during May was 104% of average, bringing the water year to date to 77% of normal. Snow cover basin-wide is 39% of average, down from 58% last month. Snowpack water equivalent for Bunchgrass Meadows SNOTEL was 0.8 inches of water. Temperatures on the upper Columbia were normal for May.

For more information contact your local Soil Conservation Service office.

COLVILLE - PEND OREILLE RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
PEND OREILLE RIVER b1 Box Canyon 2	MAY-SEP	13100.0	7920.0	60	10540.0	80	5300.0	40
	MAY-JUL	11840.0	7090.0	60	9460.0	80	4720.0	40
	MAY-JUN	9879.0	5927.0	60	7905.0	80	3950.0	40
CHAMOKANE CREEK	MAY-AUG	9.2	5.1	55	9.0	98	2.0	22
	JUL-AUG	3.6	1.0	28	2.0	56	0.5	14
COLVILLE RIVER at Kettle Falls	MAY-SEP	89.0	55.0	62	88.0	99	22.0	25
	MAY-JUL	78.0	49.0	63	78.0	100	20.0	26
	MAY-JUN	68.0	44.0	65	69.0	101	19.0	28
KETTLE RIVER nr Laurier	MAY-SEP	1644.0	1050.0	64	1345.0	82	755.0	46
	MAY-JUL	1545.0	980.0	63	1260.0	82	700.0	45
	MAY-JUN	1362.0	870.0	64	1115.0	82	625.0	46
COLUMBIA RIVER at Birchbank 2	MAY-SEP	41540.0	35100.0	84	42160.0	101	28040.0	68
	MAY-JUL	32600.0	27200.0	83	32740.0	100	21660.0	66
	MAY-JUN	22800.0	19150.0	84	23025.0	101	15275.0	67
COLUMBIA RIVER at Grand Coulee 2	MAY-SEP	59780.0	46700.0	78	52680.0	88	40720.0	68
	MAY-JUL	49060.0	38300.0	78	43205.0	88	33395.0	68
	MAY-JUN	36760.0	28670.0	78	32345.0	88	24995.0	68

RESERVOIR STORAGE		(1000AF)			WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
ROOSEVELT	5232.0	3642.2	4212.7	2851.0	Colville River	0	0 0
BANKS	715.0	1568.4	706.9	418.0	Pend Oreille River	7	313 39
					Kettle River	0	0 0

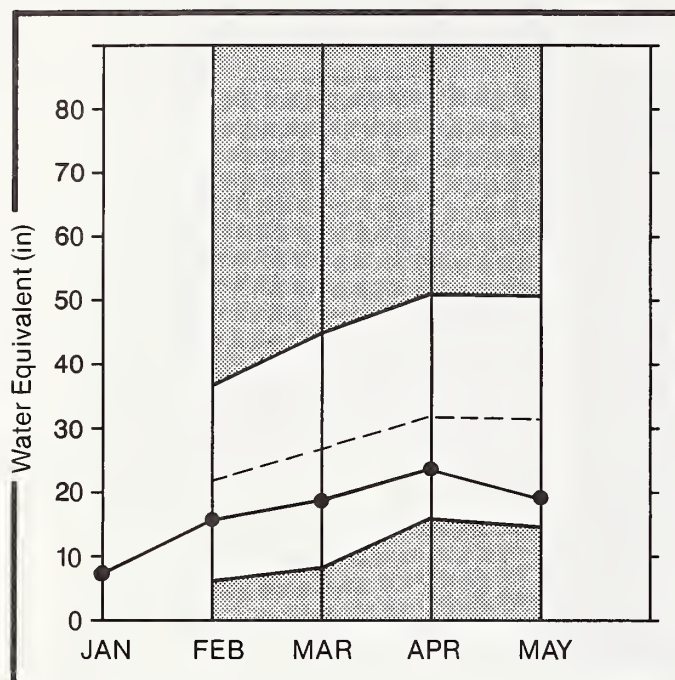
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

OKANOGAN AND METHOW

Mountain snowpack* (inches)



*Based on selected stations

Maximum



Average



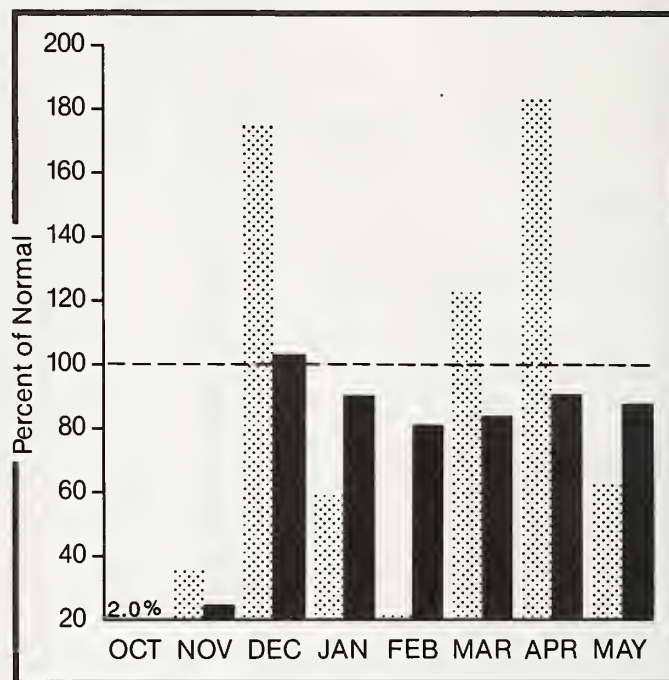
Minimum



Current



Precipitation* (percent of normal)

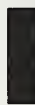


*Based on selected stations

Monthly precipitation



Year to date precipitation



OKANOGAN - METHOW RIVER BASINS

WATER SUPPLY OUTLOOK:

May precipitation in the Okanogan was 62% with water year to date 88% of average. Snow cover as of June 1 is 48% of average on the Okanogan and Methow Basins. Maximum snow water occurred at Harts Pass SNOTEL, elevation 6500 feet, with 17.0 inches of water in the snowpack. Summer runoff forecasted for the Okanogan River is 66% of normal. The Similkameen River 67% and the Methow River is 64% of normal. Okanogan River streamflow was at 80% of average for May. Storage in the Conconully Reservoirs is at 18,700 acre feet which is 80% of capacity and 104% of June 1 normal. Temperatures were 1 degrees above normal in Omak for May.

For more information contact your local Soil Conservation Service office.

OKANOGAN - METHOW RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SIMILKAMEEN R. nr Nighthawk	MAY-SEP	1345.0	895.0	67	1165.0	87	625.0	46
	MAY-JUL	1246.0	825.0	66	1075.0	86	575.0	46
	MAY-JUN	1042.0	700.0	67	910.0	87	490.0	47
OKANOGAN R. nr Tonasket	MAY-SEP	1527.0	1010.0	66	1255.0	82	765.0	50
	MAY-JUL	1367.0	905.0	66	1124.0	82	686.0	50
	MAY-JUN	1123.0	740.0	66	920.0	82	560.0	50
METHOW RIVER nr Pateros	MAY-SEP	898.0	575.0	64	790.0	88	360.0	40
	MAY-JUL	824.0	525.0	64	725.0	88	325.0	39
	MAY-JUN	687.0	440.0	64	605.0	88	275.0	40

RESERVOIR STORAGE		(1000AF)			WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
CONCONULLY LAKE (SALMON)	10.5	8.7	10.3	9.0	Okanogan River	1	145	48
CONCONULLY RESERVOIR	13.0	10.0	8.8	9.0	Methow River	1	145	48

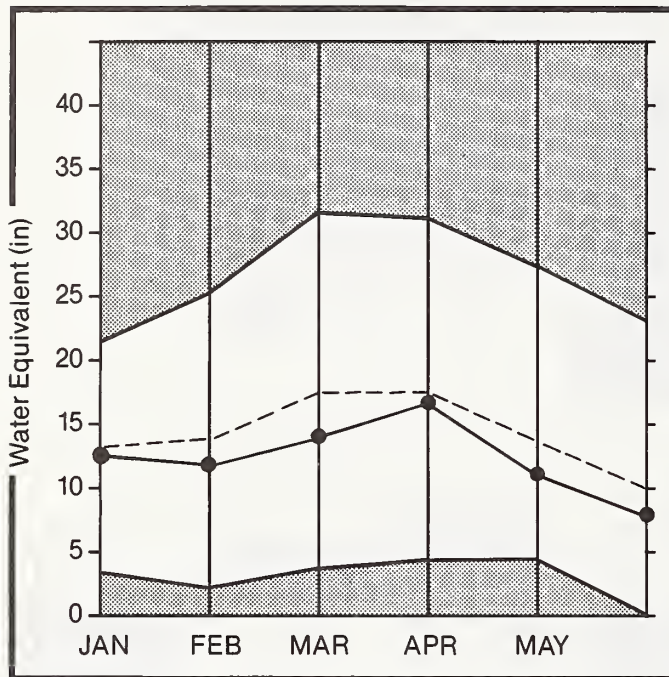
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


The average is computed for the 1961-85 base period.

WENATCHEE AND CHELAN

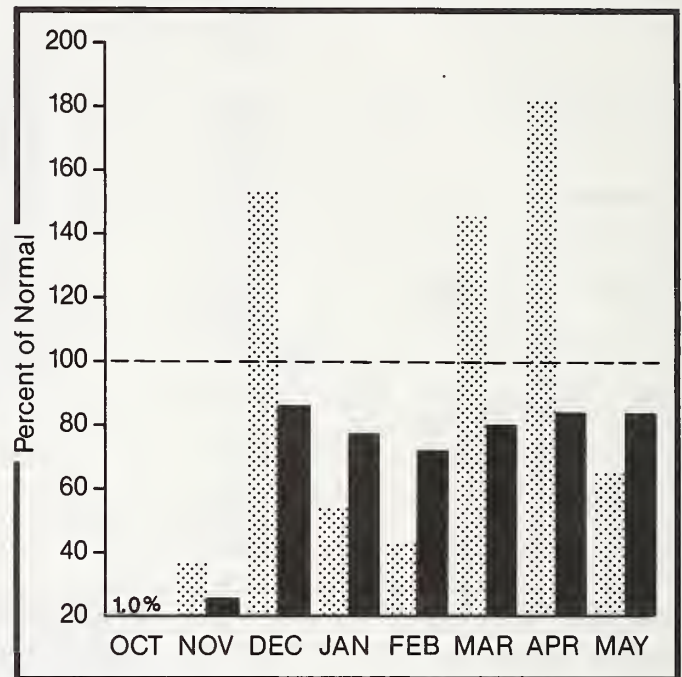
Mountain snowpack* (inches)




*Based on selected stations

Maximum  Average 
Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

WENATCHEE - CHELAN RIVER BASINS

WATER SUPPLY OUTLOOK:

Runoff for the Wenatchee River is forecast to be 79% of normal for the summer. Forecasts in the Chelan and Stehekin River are for 80% and 83% of average. May streamflow within the basin was 93% of normal on the Wenatchee and 96% on the Chelan River. Reservoir storage in Lake Chelan is at 485,100 acre feet or 108% of June 1 average and 72% of capacity. Precipitation during May was 63% of normal in the basin bringing the water year to date to 83%. Snow pack in the Wenatchee is 69% of normal and in the Chelan Basin is 87% of normal. Lyman Lake SNOTEL had the most snow water with 48.5 inches on June 1. Temperatures during April were average.

For more information contact your local Soil Conservation Service office.

WENATCHEE - CHELAN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
CHELAN RIVER at Chelan 1	MAY-SEP	1075.0	855.0	80	1016.0	95	694.0	65
	MAY-JUL	931.0	735.0	79	875.0	94	595.0	64
	MAY-JUN	707.0	580.0	82	686.0	97	474.0	67
STEHEKIN R. at Stehekin	MAY-SEP	775.0	645.0	83	723.0	93	568.0	73
	MAY-JUL	645.0	535.0	83	600.0	93	471.0	73
	MAY-JUN	473.0	400.0	85	447.0	95	353.0	75
ENTIAT RIVER nr Ardenvoir	MAY-SEP	217.0	185.0	85	218.0	100	152.0	70
	MAY-JUL	195.0	165.0	85	194.0	99	136.0	70
	MAY-JUN	155.0	135.0	87	158.0	102	112.0	72
WENATCHEE RIVER at Plain	MAY-SEP	1136.0	895.0	79	1270.0	112	520.0	46
	MAY-JUL	1002.0	790.0	79	1121.0	112	459.0	46
	MAY-JUN	765.0	615.0	80	867.0	113	363.0	47
WENATCHEE R. at Peshastin	MAY-SEP	1489.0	1150.0	77	1641.0	110	659.0	44
	MAY-JUL	1327.0	1020.0	77	1458.0	110	582.0	44
	MAY-JUN	1027.0	790.0	77	1129.0	110	451.0	44
STEMILT nr Wenatchee (miners in)	MAY-SEP	138.0	72.0	52	120.0	87	35.0	25
ICICLE CREEK nr Leavenworth	APR-SEP	370.0	295.0	80	417.0	113	173.0	47
	APR-JUL	340.0	275.0	81	387.0	114	163.0	48
	APR-JUN	270.0	219.0	81	308.0	114	130.0	48
COLUMBIA R. b1 Rock Island Dam 2	MAY-SEP	65060.0	50600.0	78	57757.0	89	43443.0	67
	MAY-JUL	53860.0	41900.0	78	47825.0	89	35975.0	67
	MAY-JUN	40550.0	31600.0	78	36061.0	89	27140.0	67

RESERVOIR STORAGE		(1000AF)			WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
CHELAN LAKE	676.1	485.1	520.4	450.6	Chelan Lake Basin	4	154	87
					Entiat River	0	0	0
					Wenatchee River	3	172	69
					Colockum Creek	0	0	0
					Squilchuck Creek	0	0	0
					Stemilt Creek	0	0	0

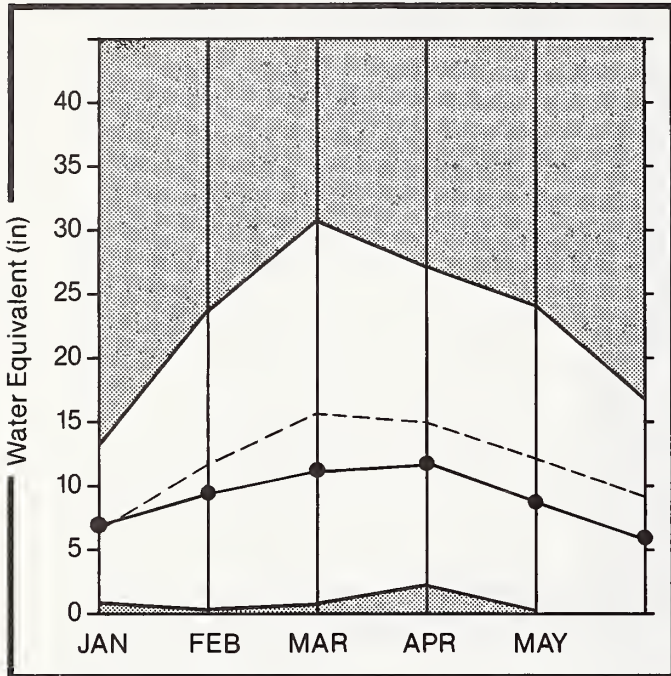
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YAKIMA

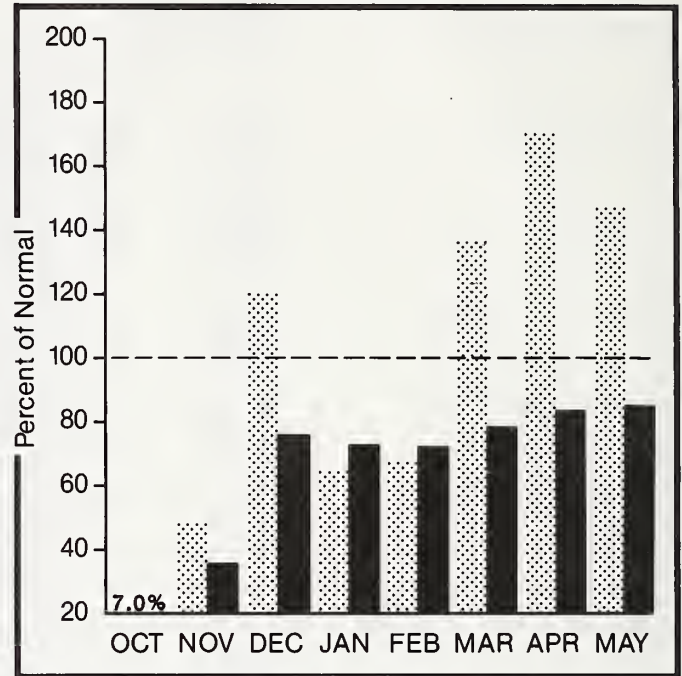
Mountain snowpack* (inches)



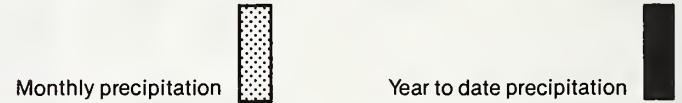
*Based on selected stations



Precipitation* (percent of normal)



*Based on selected stations



YAKIMA RIVER BASIN

WATER SUPPLY OUTLOOK:

Precipitation was 147% of normal during May bringing the water year to date total to 85% of average. May streamflow for the Yakima Basin was 76% of normal. June 1 reservoir storage for the five major reservoirs was 814,500 acre feet up from 583,400 acre feet last month. Snow pack is 68% of average in the Yakima Basin based upon data from 7 snow course and SNOTEL readings. Forecasts for the Yakima Basin runoff vary throughout the basin as follows: the Yakima River at Cle Elum 62%, Naches River 69%, the Yakima River at Parker 63% and Ahtanum Creek 79%. Temperatures in Yakima were 2 degrees below normal during May.

For more information contact your local Soil Conservation Service office.

YAKIMA RIVER BASIN

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE ¹ (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
YAKIMA RIVER at Martin 1	MAY-SEP	109.0	70.0	64	83.0	76	57.0	52
	MAY-JUL	100.0	67.0	67	79.0	79	55.0	55
	MAY-JUN	85.0	59.0	69	69.0	81	49.0	58
YAKIMA RIVER at Cle Elum 2	MAY-SEP	786.0	490.0	62	592.0	75	388.0	49
	MAY-JUL	682.0	420.0	62	509.0	75	331.0	49
	MAY-JUN	570.0	365.0	64	439.0	77	291.0	51
YAKIMA RIVER nr Parker 2	MAY-SEP	1682.0	1060.0	63	1380.0	82	740.0	44
	MAY-JUL	1469.0	925.0	63	1204.0	82	646.0	44
	MAY-JUN	1250.0	813.0	65	1051.0	84	576.0	46
KACHESS RIVER nr Easton 1	MAY-SEP	108.0	65.0	60	80.0	74	50.0	46
	MAY-JUL	89.0	53.0	60	65.0	73	41.0	46
	MAY-JUN	77.0	48.0	62	59.0	77	37.0	48
CLE ELUM RIVER nr Roslyn 1	MAY-SEP	393.0	265.0	67	312.0	79	218.0	55
	MAY-JUL	353.0	235.0	67	277.0	78	193.0	55
	MAY-JUN	289.0	199.0	69	234.0	81	164.0	57
BUMPING RIVER nr Nile 1	MAY-SEP	123.0	88.0	72	106.0	86	70.0	57
	MAY-JUL	112.0	80.0	71	97.0	87	63.0	56
	MAY-JUN	90.0	67.0	74	81.0	90	54.0	60
AMERICAN RIVER nr Nile	MAY-SEP	107.0	74.0	69	87.0	81	61.0	57
	MAY-JUL	97.0	67.0	69	79.0	81	55.0	57
	MAY-JUN	79.0	56.0	71	65.0	82	47.0	59
TIETON RIVER at Tieton 1	MAY-SEP	213.0	137.0	64	171.0	80	103.0	48
	MAY-JUL	177.0	113.0	64	141.0	80	85.0	48
	MAY-JUN	136.0	90.0	66	112.0	82	68.0	50
NACHES RIVER nr Naches 2	MAY-SEP	726.0	500.0	69	602.0	83	398.0	55
	MAY-JUL	645.0	445.0	69	535.0	83	355.0	55
	MAY-JUN	533.0	380.0	71	455.0	85	305.0	57
AHANTUM CREEK nr Tappico 2	MAY-SEP	39.0	31.0	79	40.0	103	22.0	56
	MAY-JUL	35.0	28.0	80	36.0	103	20.0	57
	MAY-JUN	29.0	24.0	83	30.0	103	18.0	62

RESERVOIR STORAGE

(1000AF)

WATERSHED SNOWPACK ANALYSIS

RESERVOIR	USEABLE CAPACITY ¹	** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
		THIS YEAR	LAST YEAR	AVG.			LAST YR.	AVERAGE
KEECHELUS	157.8	125.3	133.5	144.0	Yakima River	7	138	63
KACHESS	239.0	149.6	163.2	218.0	Ahtanum Creek	1	0	0
CLE ELUM	436.9	331.3	363.2	378.0				
BUMPING LAKE	33.7	32.5	33.2	27.0				
RIMROCK	198.0	175.8	185.2	167.0				

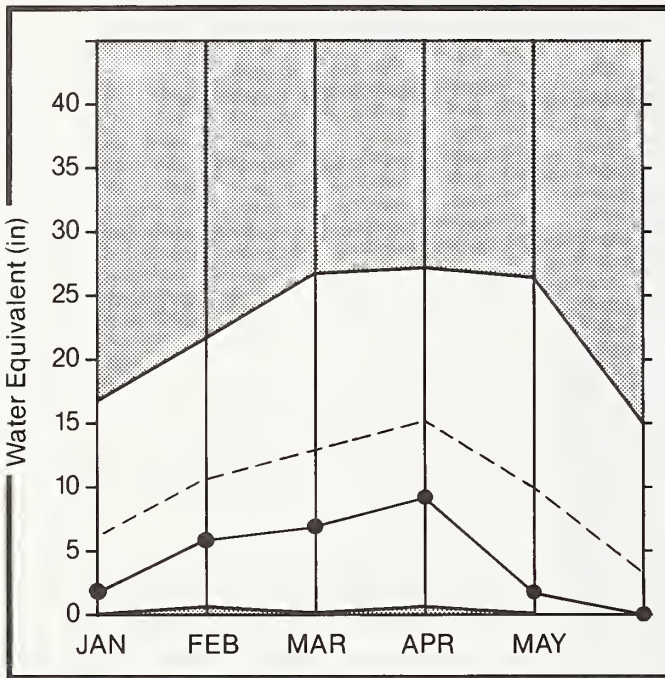
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

The average is computed for the 1961-85 base period.

WALLA WALLA

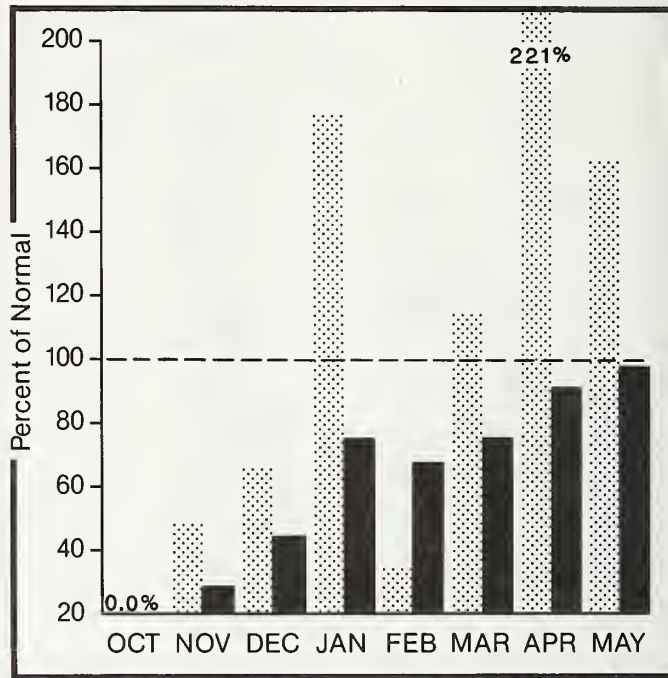
Mountain snowpack* (inches)



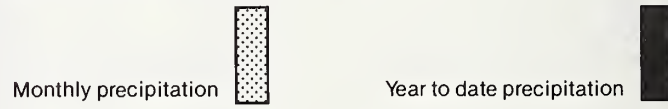
*Based on selected stations



Precipitation* (percent of normal)



*Based on selected stations



WALLA WALLA RIVER BASIN

WATER SUPPLY OUTLOOK:

May precipitation was 162% of average, with 2.00 inches falling at the Walla Walla weather station. The water year to date precipitation has been 96% of normal. June 1 snow pack in the Walla Walla River Basin is gone with the water content at the Touchet SNOTEL site leaving on May 19. Streamflow forecasts are for 39% of average in the Walla Walla Basin for the coming summer. Streamflow for the Snake River was at 59% of normal for May and 53% on the Walla Walla River. Temperatures were 1 degree above normal for May.

For more information contact your local Soil Conservation Service office.

WALLA WALLA RIVER BASIN

STREAMFLOW FORECASTS

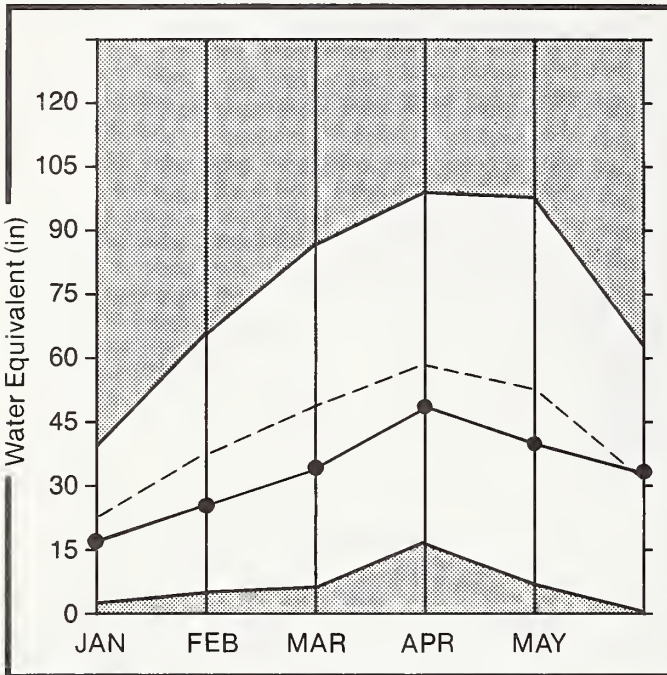
FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
MILL CREEK at Walla Walla	MAY-SEP	7.7	3.5	45	6.0	78	1.0	13
	MAY-JUL	7.5	3.4	45	6.0	80	1.0	13
	MAY-JUN	7.3	3.3	45	6.0	82	1.0	14
SF WALLA WALLA nr Milton Freewater	MAY-JUL	39.0	15.2	39	23.0	59	7.0	18
COUSE CK nr Milton Freewater	MAY-JUL	1.6	0.6	37	1.0	63	0.3	19
PINE CREEK near Weston	MAY-JUL	0.8	0.3	38	0.5	63	0.1	13
COLUMBIA R. at The Dalles 2	MAY-SEP	88790.0	62200.0	70	73743.0	83	50657.0	57
	MAY-JUL	74070.0	51900.0	70	61529.0	83	42271.0	57
	MAY-JUN	57430.0	40200.0	70	47666.0	83	32734.0	57

RESERVOIR STORAGE		(1000AF)	WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
	THIS YEAR	LAST YEAR			
		AVG.	Mill Creek	1	0 0





- 1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.
 2 - Corrected for upstream diversions or changes in reservoir storage.
 The average is computed for the 1961-85 base period.

COWLITZ AND LEWIS

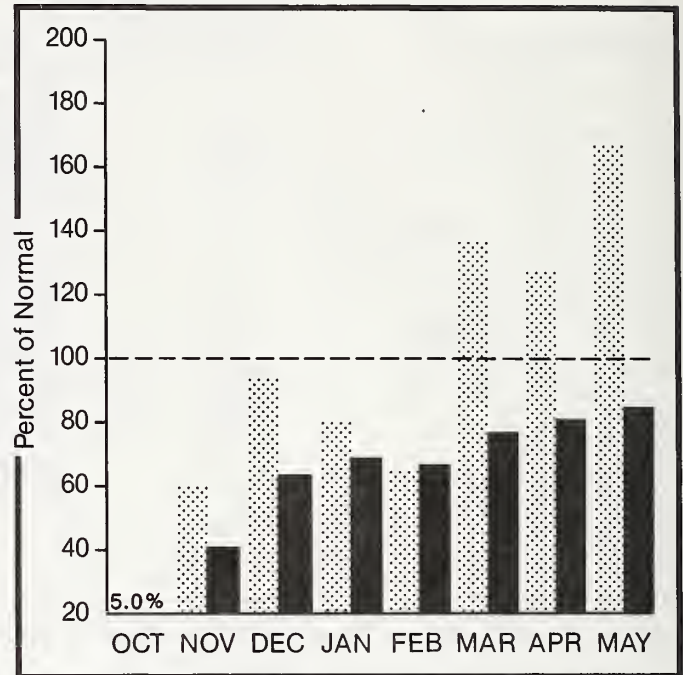
Mountain snowpack* (inches)





*Based on selected stations

Maximum  Average 
 Minimum  Current 

Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation  Year to date precipitation 

COWLITZ - LEWIS RIVER BASINS

WATER SUPPLY OUTLOOK:

June 1 snow cover for the Cowlitz-Lewis Basin was 108% of normal based upon data from SNOTEL sites within the basin. Summer runoff forecasts for the Lewis River are 73% and for the Cowlitz River 65%. The Paradise Park site had the maximum water content for the basin with a snow pack containing 56.1 inches of water on June 1. May precipitation was 167% of normal bringing the water year to date precipitation to 84% of average. Temperatures in the basin were normal for May.

For more information contact your local Soil Conservation Service office.

COWLITZ - LEWIS RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
LEWIS RIVER at Ariel 2	MAY-SEP	892.0	655.0	73	870.0	98	440.0	49
	MAY-JUL	732.0	535.0	73	711.0	97	359.0	49
	MAY-JUN	606.0	455.0	75	600.0	99	310.0	51
COWLITZ R. b1 Mayfield Dam 2	MAY-SEP	1604.0	1040.0	65	1525.0	95	515.0	32
	MAY-JUL	1350.0	825.0	61	1295.0	96	420.0	31
	MAY-JUN	1092.0	730.0	67	1025.0	94	370.0	34
COWLITZ R. at Castle Rock 2	MAY-SEP	2050.0	1190.0	58	1990.0	97	715.0	35
	MAY-JUL	1706.0	990.0	58	1670.0	98	560.0	33
	MAY-JUN	1378.0	825.0	60	1300.0	94	550.0	40

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE ** THIS YEAR	LAST YEAR	AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
					Cowlitz River	1	0 2
					Lewis River	3	0 0

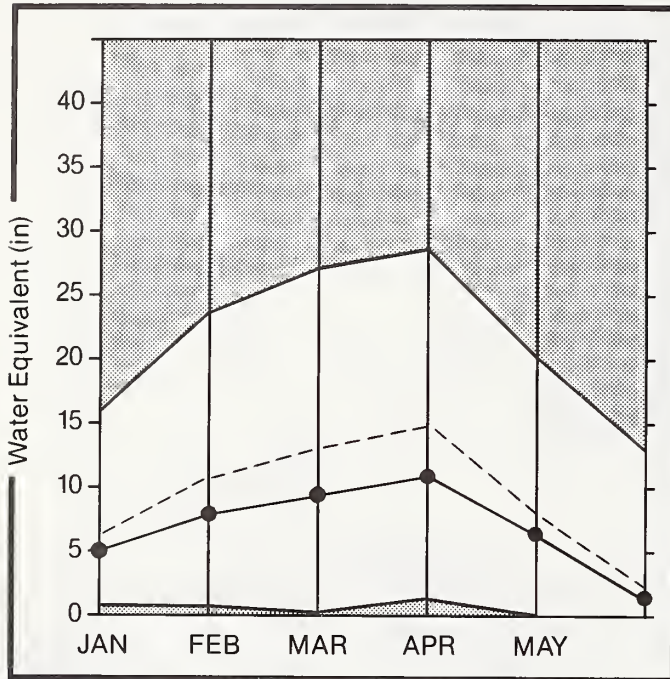
1 - Reas. max. and reas. min. forecasts are for 5% and 95% exceedance levels and also (2) below.

2 - Corrected for upstream diversions or changes in reservoir storage.

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WHITE - GREEN

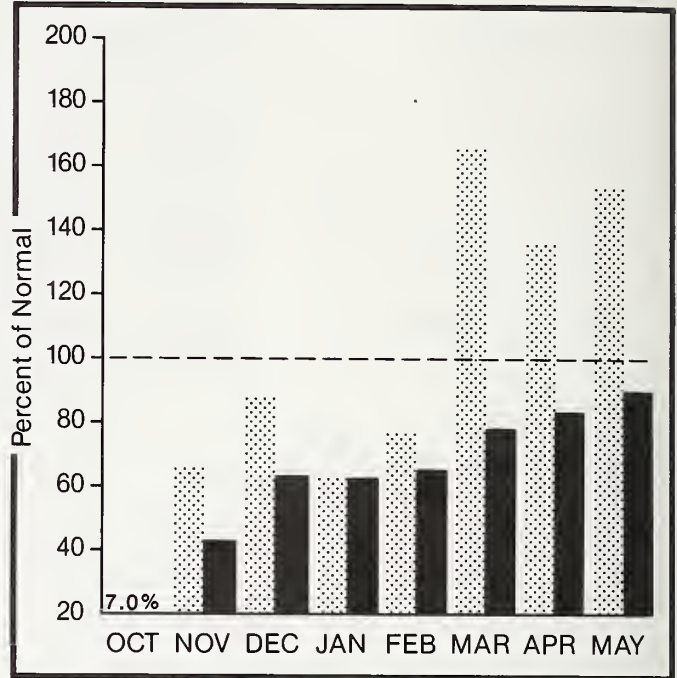
Mountain snowpack* (inches)



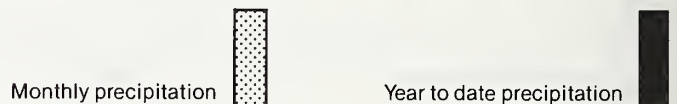
*Based on selected stations



Precipitation* (percent of normal)



*Based on selected stations



WHITE - GREEN RIVER BASINS

WATER SUPPLY OUTLOOK:

Forecasted summer runoff is for 82% of normal on the Green River, and 78% on the Cedar River. June 1 snow pack is 70% of normal for the basin with Corral Pass SNOTEL having 28.1 inches of water content in the snowpack. May precipitation was 154% of normal, bringing the water year to date to 88% of average. Cedar lake received 9.82 inches of precipitation during May, 168% of normal. Temperatures were average for May.

For more information contact your local Soil Conservation Service office.

WHITE - GREEN RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
GREEN RIVER b1 Howard Hanson Dam 2	MAY-SEP	207.0	170.0	82	205.0	99	135.0	65
	MAY-JUL	177.0	145.0	82	175.0	99	115.0	65
	MAY-JUN	153.0	125.0	82	151.0	99	99.0	65
CEDAR RIVER nr Cedar Falls	MAY-SEP	74.0	58.0	78	71.0	96	45.0	61
	MAY-JUL	65.5	52.0	79	63.0	96	41.0	63
	MAY-JUN	54.1	44.0	81	53.0	98	35.0	65

RESERVOIR STORAGE					(1000AF)	WATERSHED SNOWPACK ANALYSIS			
RESERVOIR	USEABLE		** USEABLE STORAGE **			WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF	
	CAPACITY		THIS	LAST				LAST YR.	AVERAGE
			YEAR	YEAR	AVG.				
						White River	2	122	70
						Green River	1	0	0
						Cedar River	0	0	0

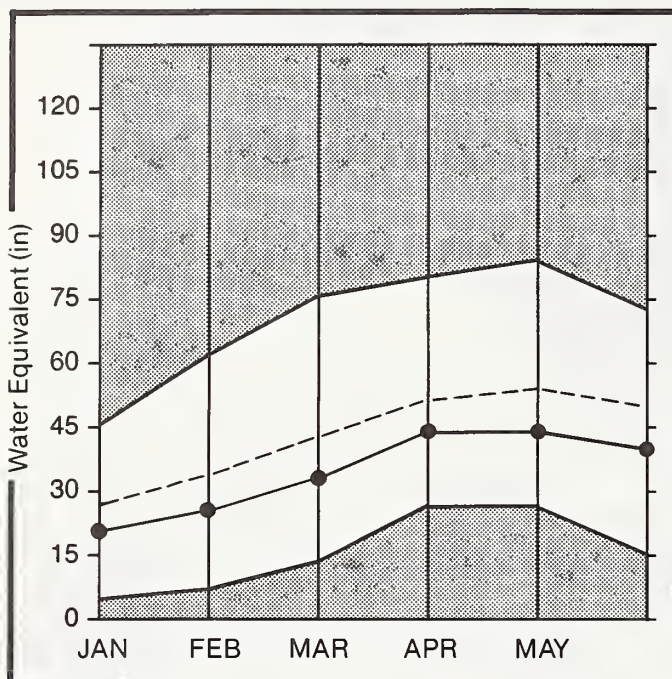
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NORTH PUGET SOUND

Mountain snowpack* (inches)



*Based on selected stations

Maximum



Average



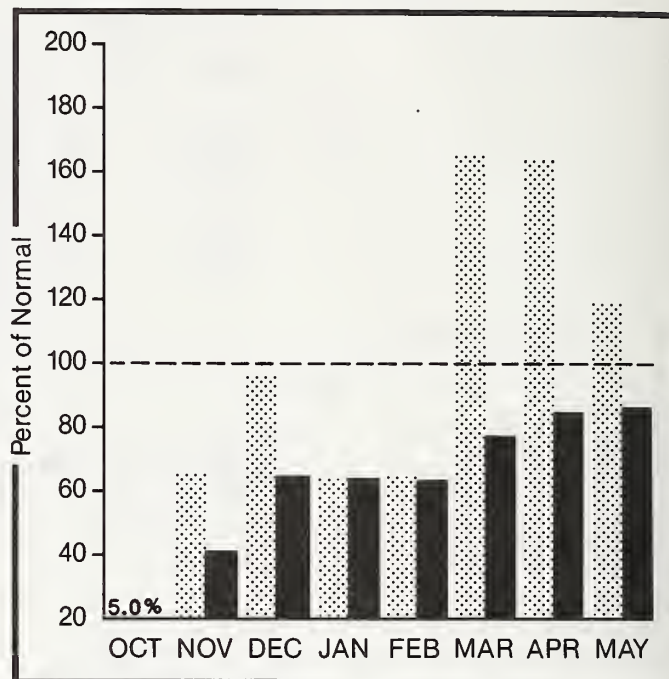
Minimum



Current



Precipitation* (percent of normal)



*Based on selected stations

Monthly precipitation



Year to date precipitation



NORTH PUGET SOUND RIVER BASINS

WATER SUPPLY OUTLOOK:

Streamflow on the Skagit River during May was 105% of average. Runoff for the Skagit River is forecasted to be 72% of normal. Reservoir storage at Ross Lake is 69% of capacity and 94% of average as of June 1. Snow cover in the North Puget Basin is 78% of normal for June 1 with Rainey Pass SNOTEL at 4780 feet in elevation having 20.2 inches of water content in a snow pack. Precipitation values for May were 118% of average with a water year to date at 86% of normal. Concrete reported 4.23 inches of precipitation for May, 124% of average.

For more information contact your local Soil Conservation Service office.

NORTH PUGET SOUND RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
SKAGIT RIVER at Newhalem 2	MAY-AUG	1919.0	1390.0	72	1678.0	87	1102.0	57
	MAY-SEP	2062.0	1485.0	72	1794.0	87	1176.0	57
	MAY-JUL	1689.0	1215.0	72	1468.0	87	962.0	57
	MAY-JUN	1485.0	1100.0	74	1323.0	89	877.0	59

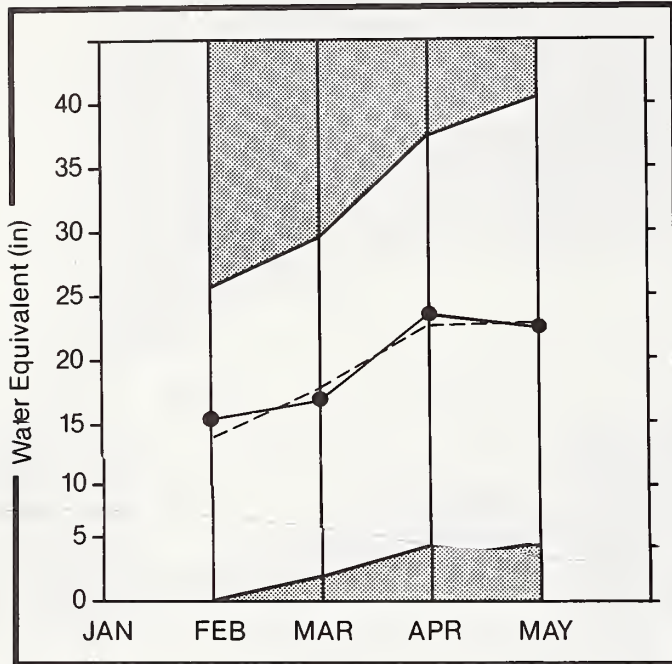
RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	** USEABLE STORAGE **	THIS YEAR	LAST YEAR	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
ROSS	1404.1	973.1	1187.7	1033.9	Skagit River	3	153 78
DIABLO RESERVOIR	90.6	86.7	85.2	86.1	Baker River	0	0 0
GORGE RESERVOIR	9.8	7.9	8.0	8.3	Snoqualmie River	0	0 0
					Skykomish River	1	0 11

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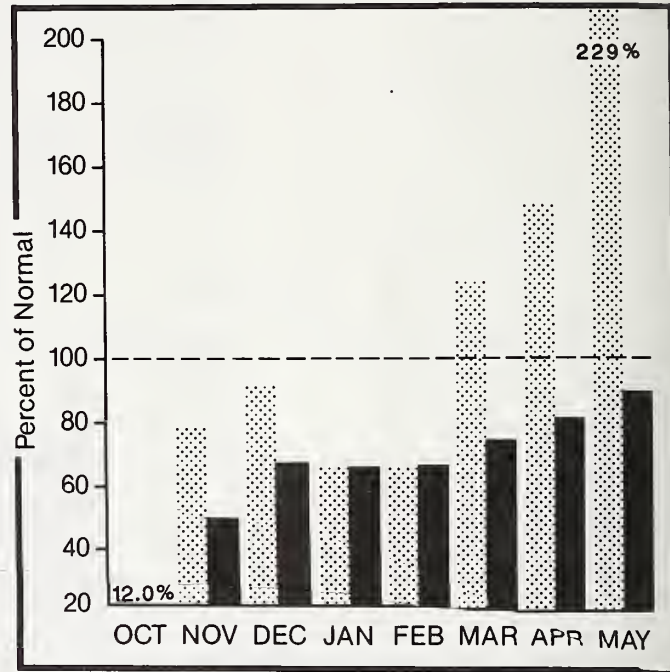
OLYMPIC

Mountain snowpack* (inches)



*Based on selected stations

Precipitation* (percent of normal)



*Based on selected stations

Maximum



Average



Minimum



Current



Monthly precipitation



Year to date precipitation



OLYMPIC PENINSULA RIVER BASINS

WATER SUPPLY OUTLOOK:

There were no snow measurements taken in the Olympic Basin this month so no additional data is known about the snow cover. The Basin's water year to date precipitation is 88% of normal. May precipitation for the basin was 229% of average, with Quillayute WSO at 10.68 inches resulting in 224% of normal. June 1 forecasts of runoff for streams in the basin are 91% of average on the Dungeness River up from 84% last month, and the Elwha River is forecast to be 92% up from 85% last month. Temperatures were normal for May.

For more information contact your local Soil Conservation Service office.

OLYMPIC PENINSULA RIVER BASINS

STREAMFLOW FORECASTS

FORECAST POINT	FORECAST PERIOD	25 YR. AVG. (1000AF)	MOST PROBABLE (1000AF)	MOST PROBABLE (% AVG.)	REAS. MAX. (1000AF)	REAS. MAX. (% AVG.)	REAS. MIN. (1000AF)	REAS. MIN. (% AVG.)
DUNGENESS RIVER nr Sequim	MAY-SEP	137.0	125.0	91	148.0	108	102.0	74
	MAY-JUL	109.0	103.0	94	122.0	112	84.0	77
	MAY-JUN	97.0	92.0	95	108.0	111	76.0	78
ELWHA RIVER nr Port Angeles	MAY-SEP	451.0	415.0	92	492.0	109	338.0	75
	MAY-JUL	363.0	345.0	95	407.0	112	283.0	78

RESERVOIR STORAGE (1000AF)					WATERSHED SNOWPACK ANALYSIS		
RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE THIS YEAR	USEABLE STORAGE LAST YEAR	USEABLE STORAGE AVG.	WATERSHED	NO. COURSES AVG'D	THIS YEAR AS % OF LAST YR. AVERAGE
					Dungeness River	0	0 0
					Horse Creek	0	0 0
					Elwha River	0	0 0

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DATA CURRENT AS OF: 6/ 6/88 7:59: 5

BASIN SUMMARY OF SNOW COURSE DATA

JUNE 1988

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-85	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-85							
PEND OREILLE RIVER							ANTANUM CREEK													
BUNCHGRASS MOWPILLOW	5000	6/01/88	---	.7	.0	14.9	GREEN LAKE	PILLOW	6000	6/01/88	---	.3S	.0	.0						
HEART LAKE TRAIL	4800	5/27/88	0	.0	.0	2.7	MILL CREEK													
MOOONO BASIN	6050	5/27/88	41	22.6	4.5	35.0	HIGH RIOGE							PILLOW	4980	6/01/88	---	.1S	.0	.0
MOOONO CREEK	5900	5/27/88	40	20.8	2.8	34.7	LEWIS AND COWLITZ RIVERS													
LOOKOUT	5140	5/30/88	0	.0	.0	12.1	JUNE LAKE	PILLOW	3200	6/01/88	---	.0S	.0	.0						
SCHWEITZER BOWL	4800	6/02/88	0	.0	.0	2.4	LONE PINE	PILLOW	3800	6/01/88	---	1.0S	.0	18.2						
SCHWEITZER RIOGE	6200	6/02/88	14	7.5	9.2	30.0	POTATO HILL	PILLOW	4500	6/01/88	---	1.6S	.0	.0						
COLVILLE RIVER							SHEEP CANYON	PILLOW	4050	6/01/88	---	2.6S	.0	20.0						
KETTLE RIVER							SPENCER MOW	PILLOW	3400	6/01/88	---	.0S	.0	.0						
OHAK LAKE, THIN LAKES							SPIRIT LAKE	PILLOW	3100	6/01/88	---	.0S	.0	.0						
SPOKANE RIVER							STRAWBERRY L. PILLOW	3280	6/01/88	---	30.8S	2.5	18.2							
LOOKOUT	5140	5/30/88	0	.0	.0	12.1	WHITE PASS ES PILLOW	4500	6/01/88	---	.3S	.0	15.2							
LOST LAKE	6110	5/26/88	44	23.1	7.4	44.7	WHITE RIVER													
NEWMAN LAKE							CORRAL PASS	PILLOW	6000	6/01/88	---	28.1S	12.8	24.9						
QUARTZ PEAK	PILLOW	4700	6/01/88	---	.0	.0	MORSE LAKE	PILLOW	5400	6/01/88	---	11.3S	19.6	31.2						
OKANOGAN RIVER							GREEN RIVER													
HARTS PASS	PILLOW	6500	6/01/88	---	17.0S	11.7	35.7	COUGAR MTN.	PILLOW	3200	6/01/88	---	.0S	.0	.0					
SALMON MOWS	PILLOW	4500	6/01/88	---	.0S	.0	--	GRASS MOUNTAIN #3	2100	5/31/88	0	.0	--	--						
METHOW RIVER							LESTER CREEK	3100	5/31/88	0	.0	--	--							
HARTS PASS	PILLOW	6500	6/01/88	---	17.0S	11.7	35.7	LYNN LAKE	4000	5/31/88	0	.0	--	--						
SALMON MOWS	PILLOW	4500	6/01/88	---	.0S	.0	--	SAWMILL RIOGE	4700	5/31/88	50	19.6	--	--						
CHELAN LAKE BASIN							TWIN CAMP	4100	5/31/88	0	.0	--	--							
LYMAN LAKE	PILLOW	5900	6/01/88	---	48.5S	30.0	47.6	CEDAR RIVER												
MIRROR LAKE	PILLOW	5600	6/01/88	---	25.1S	16.7	23.0	SHOQUALMIE RIVER												
PARK CK RIOGE	PILLOW	4600	6/01/88	---	.0S	.0	10.8	KROMONA MINE	2600	5/24/88	4	2.2	--	--						
RAINY PASS	PILLOW	4780	6/01/88	---	20.2S	14.3	26.4	OLNEY PASS	3250	5/24/88	0	.0	--	--						
ENTIAT RIVER							SKYKOMISH RIVER													
HENATCHEE RIVER							STEVENS PASS	PILLOW	4070	6/01/88	---	3.1S	.0	27.5						
BLEWETT PASS#2PILLOW	4270	6/01/88	---	.0S	.0	.0	STEVENS PASS SAND SO	3700	5/31/88	3	1.4	--	11.3							
LYMAN LAKE	PILLOW	5900	6/01/88	---	48.5S	30.0	47.6	SKAGIT RIVER												
STEVENS PASS	PILLOW	4070	6/01/88	---	3.1S	.0	27.5	HARTS PASS	PILLOW	6500	6/01/88	---	17.0S	11.7	35.7					
STEVENS PASS SAND SO	3700	5/31/88	3	1.4	--	11.3	LYMAN LAKE	PILLOW	5900	6/01/88	---	48.5S	30.0	47.6						
COLOCKUM CREEK							RAINY PASS	PILLOW	4780	6/01/88	---	20.2S	14.3	26.4						
TROUGH #2	PILLOW	5310	6/01/88	---	.0S	.0	--	BAKER RIVER												
SQUILCHUCK CREEK							OUNGENESS RIVER													
STEMILT CREEK							MORSE CREEK													
YAKIMA RIVER							ELWHA RIVER													
BLEWETT PASS#2PILLOW	4270	6/01/88	---	.0S	.0	.0														
BUMPING LAKE	3450	3/31/88	0	.0	--	--														
BUMPING LAKE (NEW)	3400	3/31/88	0	.0	--	--														
CORRAL PASS	PILLOW	6000	6/01/88	---	28.1S	12.8	24.9													
FISH LAKE	PILLOW	3370	6/01/88	---	4.8S	.0	.0													
GREEN LAKE	PILLOW	6000	6/01/88	---	.3S	.0	.0													
CROUSE CAMP	PILLOW	5380	6/01/88	---	.0S	.0	.0													
MORSE LAKE	PILLOW	5400	6/01/88	---	11.3S	19.6	31.2													
SASSE RIOGE	PILLOW	4200	6/01/88	---	.0S	.0	23.0													
TUNNEL AVENUE	2450	5/26/88	0	.0	--	--														
WHITE PASS ES PILLOW	4500	6/01/88	---	.3S	.0	15.2														

The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

Canada: Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States: Washington State Department of Ecology
Washington State Department of Natural Resources

Federal: Department of the Army
Corps of Engineers
U.S. Department of Agriculture
Forest Service
U.S. Department of Commerce
NOAA, National Weather Service
U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service
Bureau of Indian Affairs

Local: City of Tacoma
City of Seattle
Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company
Snohomish County P.U.D.
Colville Confederated Tribes

Private: Okanogan Irrigation District
Wenatchee Heights Irrigation District
Newman Lake Homeowners Association

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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